

METHOD OF IMPROVING THERMAL STABILITY FOR COBALT SALICIDE

ABSTRACT OF THE DISCLOSURE

A method of improving thermal stability for cobalt salicide includes providing a substrate which has a silicon layer formed thereon. A cobalt layer is formed over the silicon layer, and TiN_x layer is formed over the cobalt layer. The TiN_x layer includes x atoms of nitrogen for each atom of titanium in a TiN_x molecule, and a value of x is greater than 0.9. A first thermal process is then performed to form a cobalt salicide layer over the silicon layer. Any non-reactive cobalt is removed, and a second thermal process is performed to enhance the conductivity of the cobalt salicide layer.